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When new business models go bad

irresponsible innovation and the case of cycle hire schemes

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Abstract

Innovations are needed to help tackle grand challenges such as climate change, and innovations to business models are a particularly promising area for sustainability. This is because business models influence what value is created and how, and can fundamentally alter the underlying logic used by a business. Business models can also profoundly influence how technological innovations are deployed within society. However, innovation outcomes can be unpredictable; unintended consequences are not just possible but probable. To minimise negative impacts and enhance the success of sustainable business models, socio-ethical factors must be incorporated and managed. Research on responsible innovation, which seeks to manage socio-ethical factors, is well developed but has often used a technocentric lens. As such, it is unclear how socio-ethical factors interact with business model innovation processes and how they manifest themselves in the final

business model configuration. In this research, we seek to explore the extent to which the business model influences the type and nature of socio-ethical impacts and start to think about how they could be better managed to enhance the social desirability and ethical acceptability of business model innovations. To do this we explore cases of 'irresponsible' business models within the context of new cycle hire businesses in Europe. We contribute by linking the concepts of responsible innovation and business models, as well as highlighting how normative and socio-ethical factors can be integrated into business model design and organisational strategy.

Introduction

Innovations are needed to address a range of societal sustainability challenges, from climate change to personal mobility. These innovations can take a variety of forms, from product and service innovation to changes to business models. The novel nature of innovations often raises questions of responsibility and legitimacy (Scholten and van der Duin 2015), with many cutting-edge innovations taking on ethical significance, especially where societal consensus is absent (Marshall 1999). For innovations to be successful and to have the desired impacts, it is critical that they incorporate socio-ethical issues (Von Schomberg, 2013). The concept of responsible innovation can provide guidance in this regard, as it provides a set of principles aimed at ensuring that innovations are ethically acceptable and socially desirable.

While technological innovations have been the focus of responsible innovation, business models influence how technologies are deployed and used. For an innovation to be widely used and diffused, it requires an appropriate and effective business model (Schaltegger et al. 2016). Indeed, as Chesbrough (2010) notes: “A company has at least as much value to gain from developing an innovative new business model as from developing an innovative new technology”. The business model utilized will influence what value is created, how it is delivered and how the value is captured. As such, the business model is a critical aspect of the innovation and start-up process, influencing how a firm and its innovations interact with society and issues of sustainability. This means socio-ethical factors must be integrated into the business model also, impacting its design and operation (Taebi et al. 2014).

A distinct line in business model research explores how organisational design can be optimized for sustainable outcomes (Boons and Lüdeke-Freund 2013; Schaltegger, Lüdeke-Freund, and Hansen 2016). While research interest and practice in business models for sustainability has been growing, it is still unclear how socio-ethical issues are integrated into business models for sustainability as well as how a responsible business model would look in practice. Similarly, much of the responsible innovation research is conducted via a technocentric lens, focusing on how socio-ethical issues are managed in relation to technological innovations. This is problematic as it ignores the influence of business models on how technological innovations interact with society and the environment (Chesbrough 2010), and

means questions of responsibility are potentially ignored during the business model innovation process.

We argue that for responsible outcomes, responsibility dimensions must also be integrated at the business model level (Hope and Moehler 2015). However, the interplay between socio-ethical factors, business model development processes, and the final business model configuration is unclear. As such, we seek to answer the following research questions: to what extent does the business model design influence the type and nature of socio-ethical impacts? And, how can socio-ethical issues be taken account of and incorporated into business model design to enhance social desirability and ethical acceptability?

To answer the research questions we explore several cases of innovative cycle hire schemes. We examine the business model innovation and development process, as well as the impacts of the business model that was deployed. To do this we construct an analytical framework using the concepts of responsible innovation, business models and business model innovation. The framework uses a responsible innovation lens to consider the role of socio-ethical factors.

By exploring how business model innovation interacts with socio-ethical issues/principles of responsible innovation we help shed light on how an organisation can be designed for responsible outcomes and inform debates focused on the development and operation of responsible business and innovation more widely.

The research will contribute to sustainable business model concepts by highlighting how normative and socio-ethical factors are integrated into organisational design in the innovation process. In addition, the research will contribute to discourses on socio-ethical issues in innovation by highlighting where in the business model responsible innovation is embedded.

Conceptual framework

We develop a conceptual framework to aid our assessment of how business model design influences the nature of socio-ethical impacts, and how socio-ethical impacts can be integrated into business model innovation and development. A central tenet of our framework asserts that socio-ethical factors influence business model design and operation and vice versa (see figure 1).

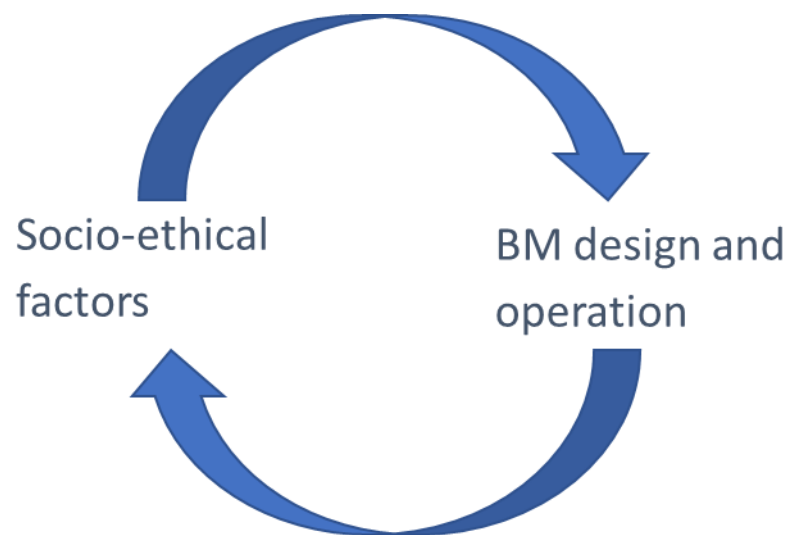


Figure 1: Interaction between socio-ethical factors and business model design and operation.

As an overall structure we use the ‘3Ps’ (*purpose, process, product*) approach to responsible innovation as this provides a broad and inclusive framework able to capture key input, process and impact factors (Stahl et al. 2017). The input factors allow the motivations for developing the business model to be established as well as any initial awareness of socio-ethical factors to be explored. These factors can provide explanations for why certain processes were (or were not) undertaken and provides a point of departure for the different cases.

Next is the process category. This aspect focuses on the business model innovation process. In this analysis we draw on the AIRR framework dimensions of anticipation, inclusivity, reflexivity and responsiveness (Stilgoe, Owen, and Macnaghten 2013). These dimensions provide a normative or best-case example of responsible innovation and a benchmark against which to explore the actual business model innovation and development processes undertaken by the cases. Table 2 gives an overview of the key concepts and their operationalisation.

Table 1: 3Ps responsible innovation framework including key components.

RRI Category	RRI Components (indicators)
Purpose (motivation)	<p>Motivations for doing the research</p> <p>Motivations for engaging with RRI</p> <p>Ethics (justification of intended outcomes)</p>
Process (activities)	<p>Anticipation</p> <p>Inclusivity</p>

	Reflexivity Responsiveness
Product (outcomes)	Value proposition Revenue model Key processes Key resources Which are then assessed in terms of: principles of sustainable development, social responsibility, ethical acceptability, and flexibility to local needs and markets.

Finally, the product aspect of the framework focuses on the result of the innovation and development process, that is, the final business model that is employed. We utilise a simplified business model approach examining the key aspects of value proposition, revenue model, key processes and key resources. The impact of these aspects is judged according to a definition of a responsible business (Hope and Moehler 2015; Von Schomberg 2013), and business models for sustainable innovation:

- Incorporate the principles of sustainable development (environment), social responsibility and ethics (social desirability/ grand challenge) into the value proposition (Hope and Moehler 2015);

- Reconciliation of profit and social values (ethical acceptable) ;
- Flexibility to incorporate local needs and markets (socially desirable) ;
- That the supply chain is designed and managed responsibly;
- The interface with the customer should motivate users to take responsibility for their own and wider stakeholder actions.
- The financial model should take account of social and environmental externalities and ensure a fair distribution between relevant stakeholders.

CONTEXT AND METHODS

We explore this question through the context of cycle hire schemes in Europe. This is an interesting setting through which to explore business models and their interaction with socio-ethical issues and impacts as the technology used (i.e. bicycle) is long-standing, widely accepted and seen as relatively benign. This allows business model effects to be isolated more easily from any novel technological effects.

Due to the exploratory nature of the research context and research questions, we take a qualitative approach. To explore and answer the research questions we explore several cases of innovative cycle hire schemes. We examine the business model innovation and development process, as well as the impacts of the business model that was deployed.

Semi-structured interview data across eight cases was collected. This data was used to explore the final business model configuration as well as give insights into

the business model innovation process. The transcripts generated through the interviews was combined with data obtained through desk research (such as reports, newspaper articles or grey literature). This allowed the impacts of the various schemes (positive and negative) to be considered and to inform the analysis of the impact of the final business model configurations.

INITIAL RESULTS AND CONCLUSIONS

By exploring how business model innovation interacts with socio-ethical issues and the principles of responsible innovation we help shed light on how an organisation can be designed for more responsible and sustainable outcomes. We also inform debates focused on how and whether responsible (or ‘better’) businesses are more successful.

The cases included in the analysis cover four different bike sharing business model typologies (as highlighted in table 3).

Table 2: Overview of cycle hire business models (Van Waes et al., 2018)

Two-way station-based	One-way station-based
Target group: commuters, last mile	Target group: business, local citizens

Two-way free-floating (“peer-to-peer”) Target group: tourist, local citizens, bike owners	One-way free-floating Target group: tourist, business, local citizens
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We focus in particular on the case of ‘one-way free-floating’ cycle business models (van Waes et al. 2018), which have been met with mixed results. This business model is aimed at facilitating one-way journeys. The value proposition seeks to allow users to use the bike with more freedom than other schemes, allowing them to pick-up and drop-off the bike anywhere in the city. Apps are used to highlight the location of available bikes, with the aim that there is always one within walking distance. This pick-up and drop-off anywhere model also means there is limited-to-no physical infrastructure. This also means however, that space within public areas is an important resource for this model.

This requirement for public space has meant that in some circumstances, this business model has clashed with local communities (for example, in Amsterdam, see (O’Sullivan 2017; *DutchNews.Nl* 2017)).

Preliminary analysis of this case indicates that there was a potential failure to incorporate socio-ethical issue, in terms of social desirability within the local context. Through this particular example, the business model appeared inflexibility in terms of 'incorporating local needs and market conditions' (which included limited cycle storage space within the local environment), a lack of stakeholder inclusion in the development and/or application of the business model, and a failure to anticipate potential impacts and futures. These aspects manifest themselves through the 'key resources' aspect of the business model, as it is the street scene and local community who can be considered a key resource in terms of 'space' and hosting the technology. The case also raises issues in terms of the fair distribution of costs and benefits, between the hosting community versus the visiting users (tourists) and the community.

Such cases provide a unique opportunity to explore the impact of the business model in terms of socio-ethical impacts, as the technology in question, the bicycle is benign in nature, well used and integrated within the society in question. This means business model impacts can be more easily isolated.

The research contributes to sustainable business model concepts by highlighting how normative and socio-ethical factors are integrated into organisational design in the innovation process. In addition, the research will contribute to responsible innovation discourses by highlighting where in the business model responsible innovation is embedded. This will have implications for our understanding of the

interaction between business models and socio-ethical factors, and may be a first step in providing practical guidance to those designing and implementing business models in how to do this in a more responsible way. A practical approach to responsible business model innovation would provide benefits to both societal and entrepreneurs.

Keywords

Responsible innovation, business model innovation, socio-ethical factors

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